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STUDIES UPON THE NUMBER OF GERM CELLS OF CERTAIN FISH, ... *Nellie Taylor, Cora M. Downs.*

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Studies Upon the Number of Germ Cells of Certain Fish.

Fundulus heteroclitis.—NELLIE TAYLOR.
Embiotica jacksoni.—CORA M. DOWNS.

[Contribution from the Zoölogical Laboratory No. 214.]

EXPLANATORY NOTE.—B. M. ALLEN.

The purpose of the following papers is to show the typical number of germ cells of certain vertebrates during certain early stages in development in which there is for a long period no multiplication. It is believed that this is a matter of considerable theoretical interest. Each species of vertebrates has a typical average number of germ cells present at this time, and it is thought that future investigation may perhaps show that the final number of germ cells produced in a yield will prove to be some multiple of this. Upon such an assumption there is considerable interest in comparing the number of germ cells in different individuals. This work was done under my supervision and I feel full confidence in the results given below. This work is in line with similar counts made by Eigemann, Beard and by myself upon various forms of vertebrates. These counts of the germ cells of these teleosts are of considerable interest. This is especially true in the case of *Fundulus heteroclitis*, a form that has served for so much valuable work along experimental lines.

The eggs and embryos of *Fundulus heteroclitis* were collected at Woods Hole, Mass. They were preserved and fixed in Zenker's fluid and 5 per cent formalin.

The material of *Embiotoca jacksoni* was gathered at San Diego, Calif., fixed in bichromate-acetic fluid and preserved in 70 per cent alcohol.

Paraffin sections were cut the thickness of 10 micra, and stained in iron-hæmatoxylin and orange G. Great care was

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taken to repeat these counts, and there is every reason to believe that they are approximately correct within a very short margin of error.

Table showing number of sex-cells in embryos varying in size from a total length of 3 mm. to 7 mm.:

FUNDULUS HETEROCLITIS.

Age, 24 days.

Number.	Length.	No. of cells.	Av. No. cells.
1	6 mm.	24	..
2	6½ mm.	27	..
3	7 mm.	32	..
4	7 mm.	35	..
5	6½ mm.	43	32

Age, 17 days, varying in length from 5 mm. to 6½ mm.

Number.	Length.	No. of cells.	Av. No. cells.
1	5 mm.	32	..
2	6 mm.	29	..
3	6½ mm.	41	..
4	6½ mm.	45	37

Age, 7 days, varying from 3 to 4 mm. in length.

Number.	Length.	No. of cells.	Av. No. cells.
1	3 mm.	30	..
2	3½ mm.	36	..
3	4 mm.	40	..
4	4 mm.	38	..
5	3⅓ mm.	37	36

EMBIOTOCA JACKSONI.

Table showing the number of primitive germ cells in embryos varying in size from 7.58 mm. to 3.25 mm.:

Stage.	Fish.	No. of cells.	Average.
7.58 mm.	A	8	..
	B	12	..
	C	10	..
	D	10	..
	E	10	10
4.96 mm.	A	15	..
	B	7	..
	C	9	10.3
4.76 mm.	A	15	...
	B	18	...
	C	13	...
	D	13	...
	E	9	13.6
3.36 mm.	A	12	12
3.25 mm.	A	9	9

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